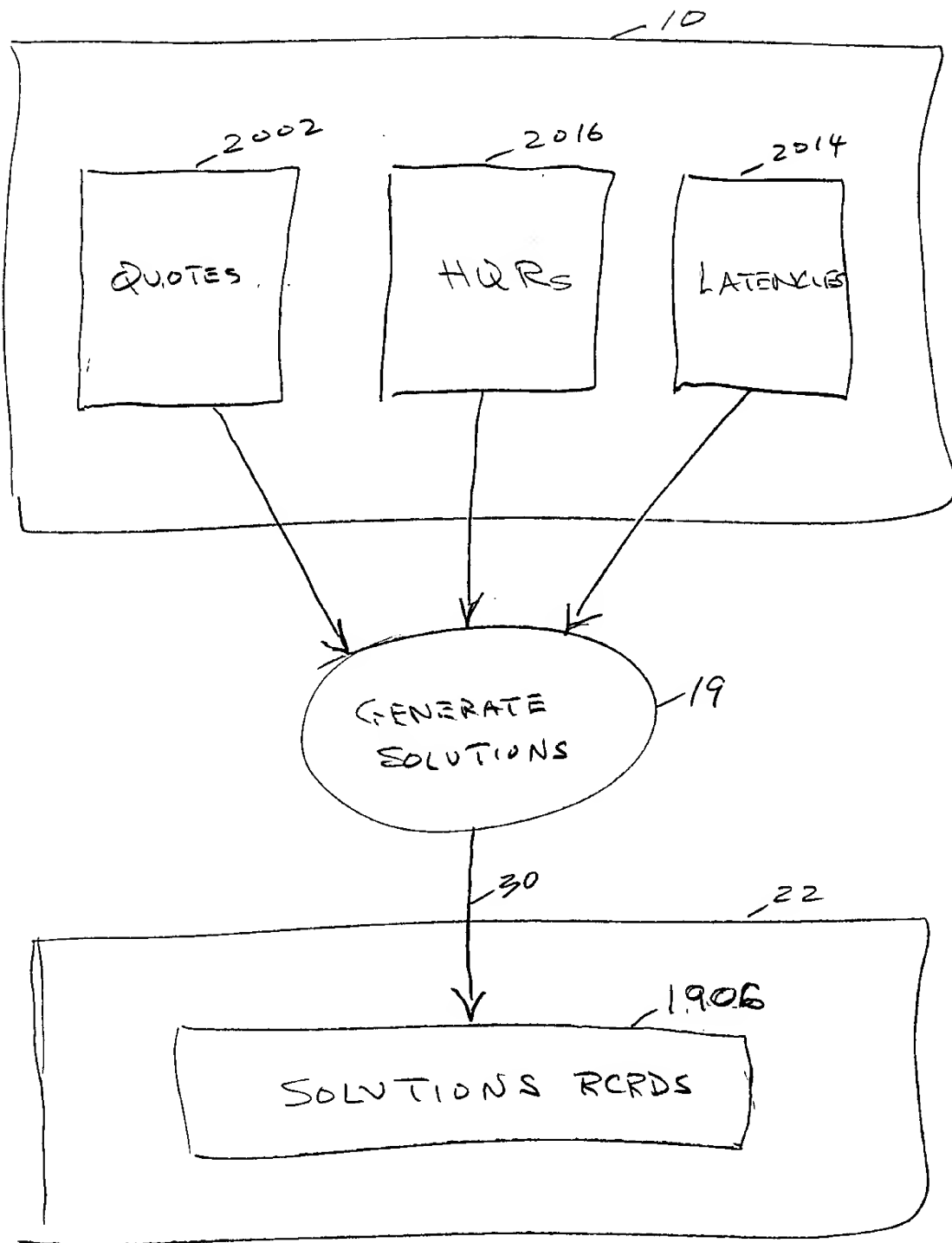


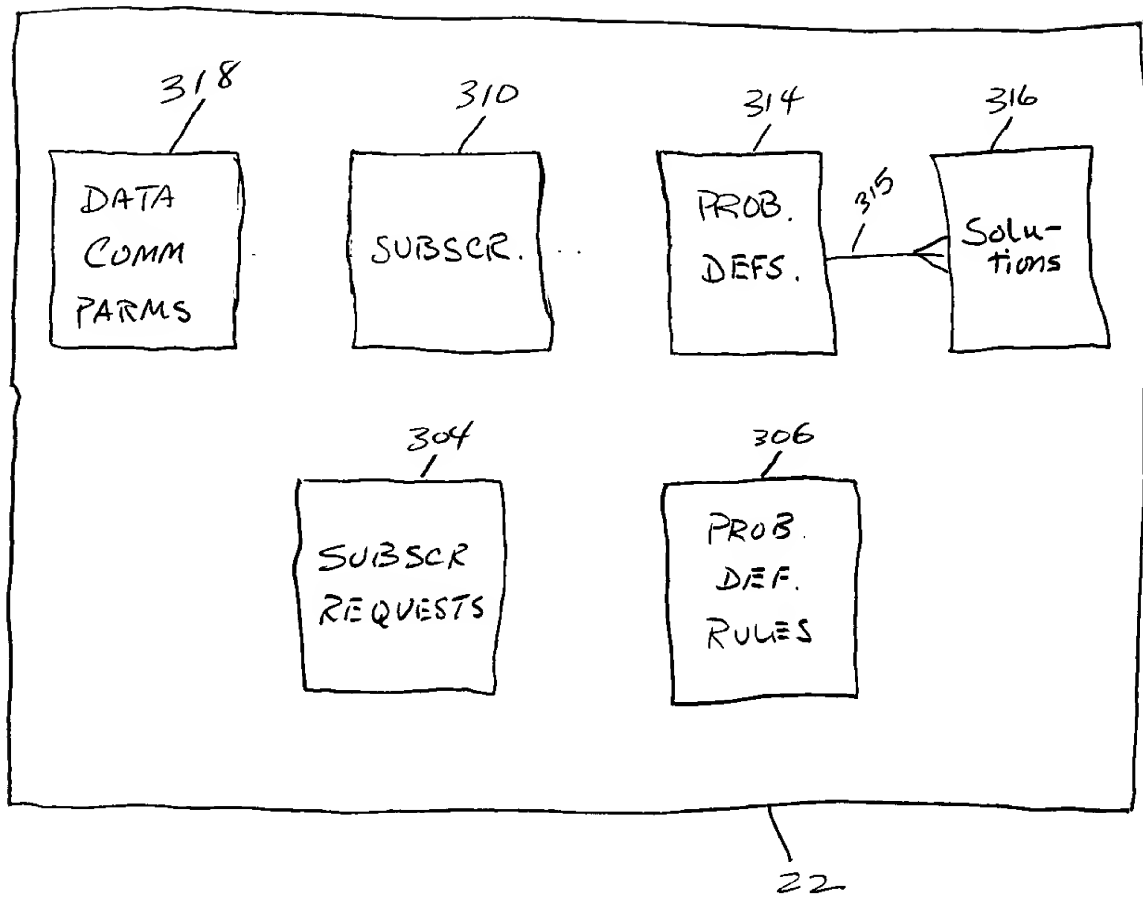
Fig. 1.

09578947.052500



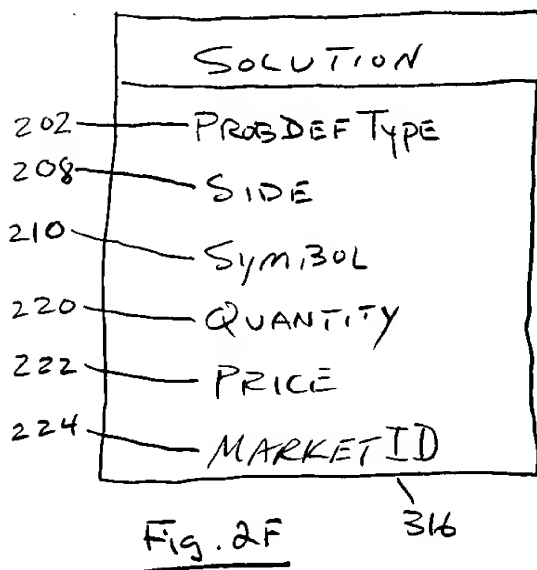
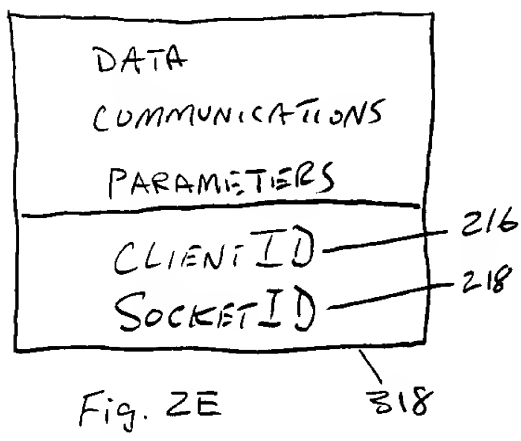
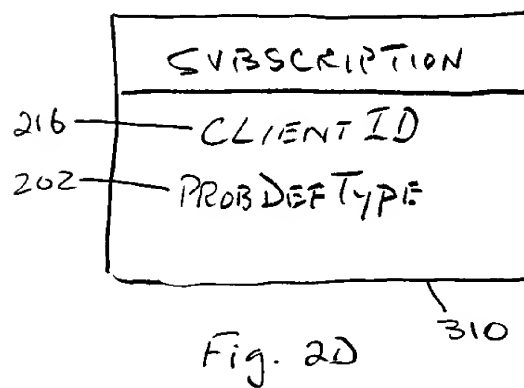
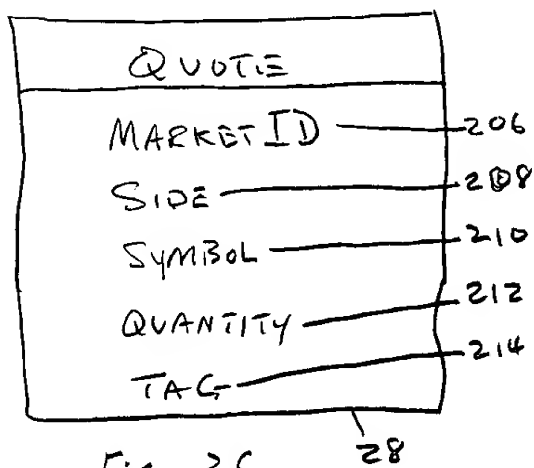
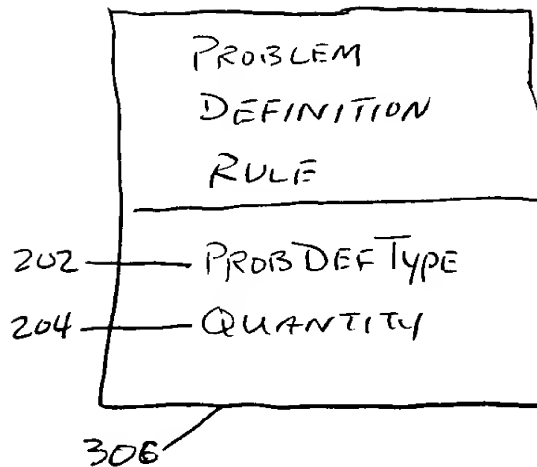
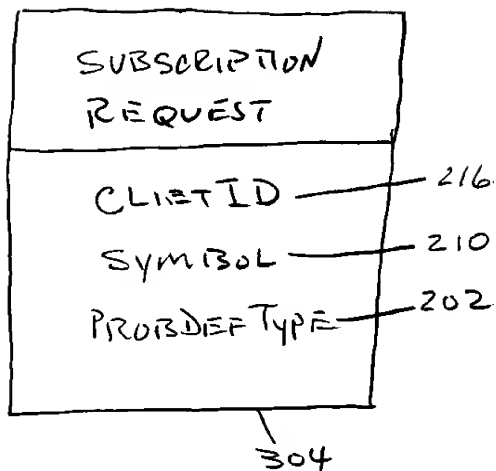
GENERATE SOLUTIONS

Fig. 1A



DATABASE

Fig. 2



Figs. 2A-2F

05578947-055800

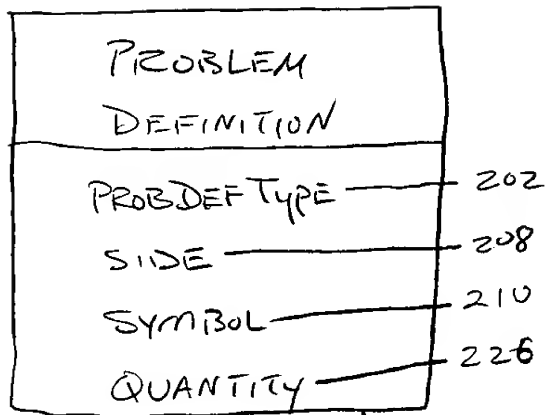


Fig. 2G

314

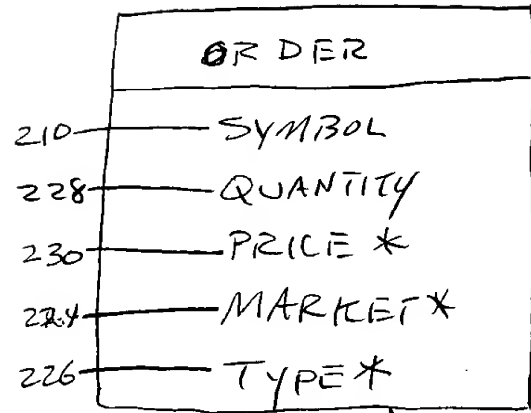
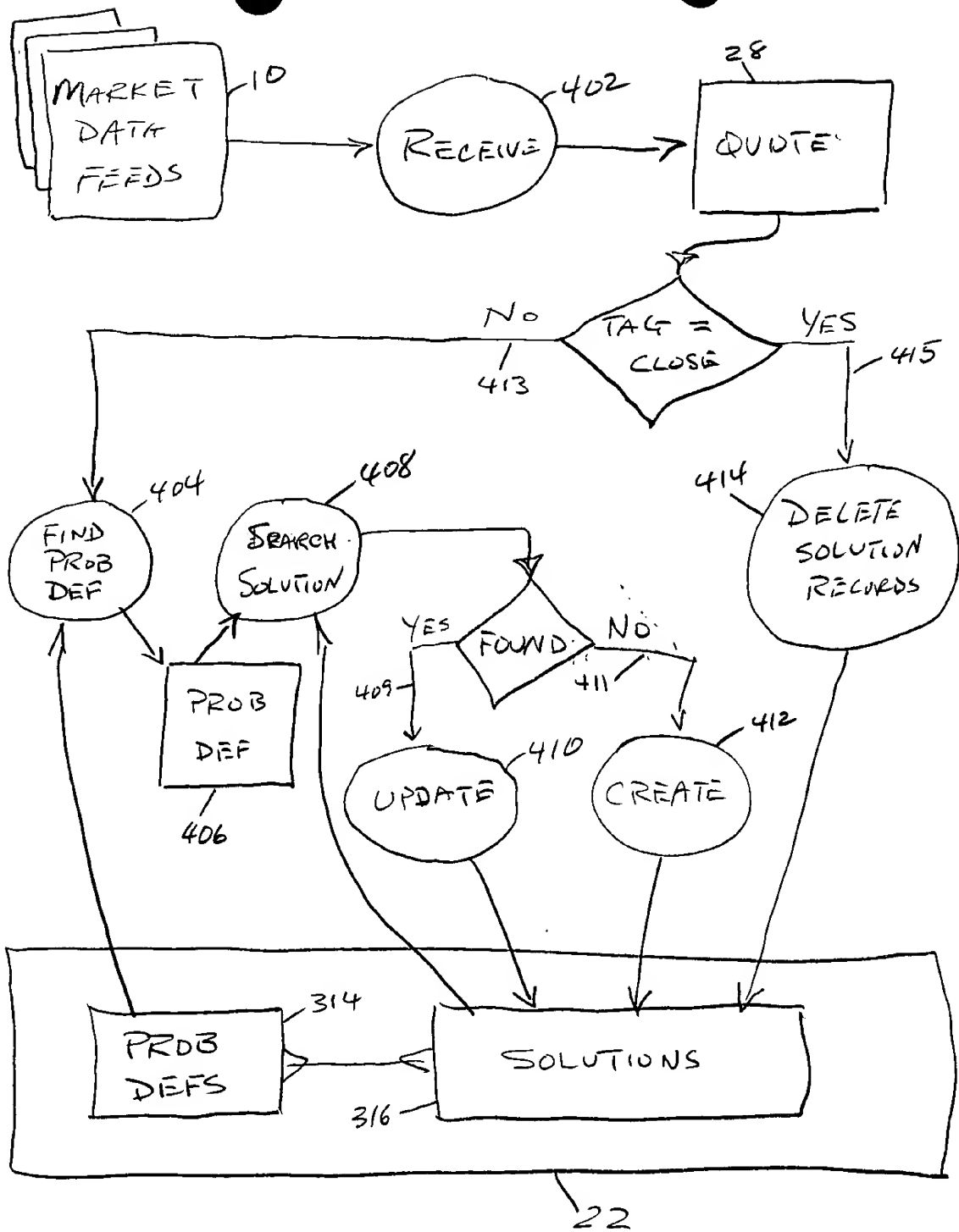


Fig. 24

606

## \* OPTIONAL ELEMENTS



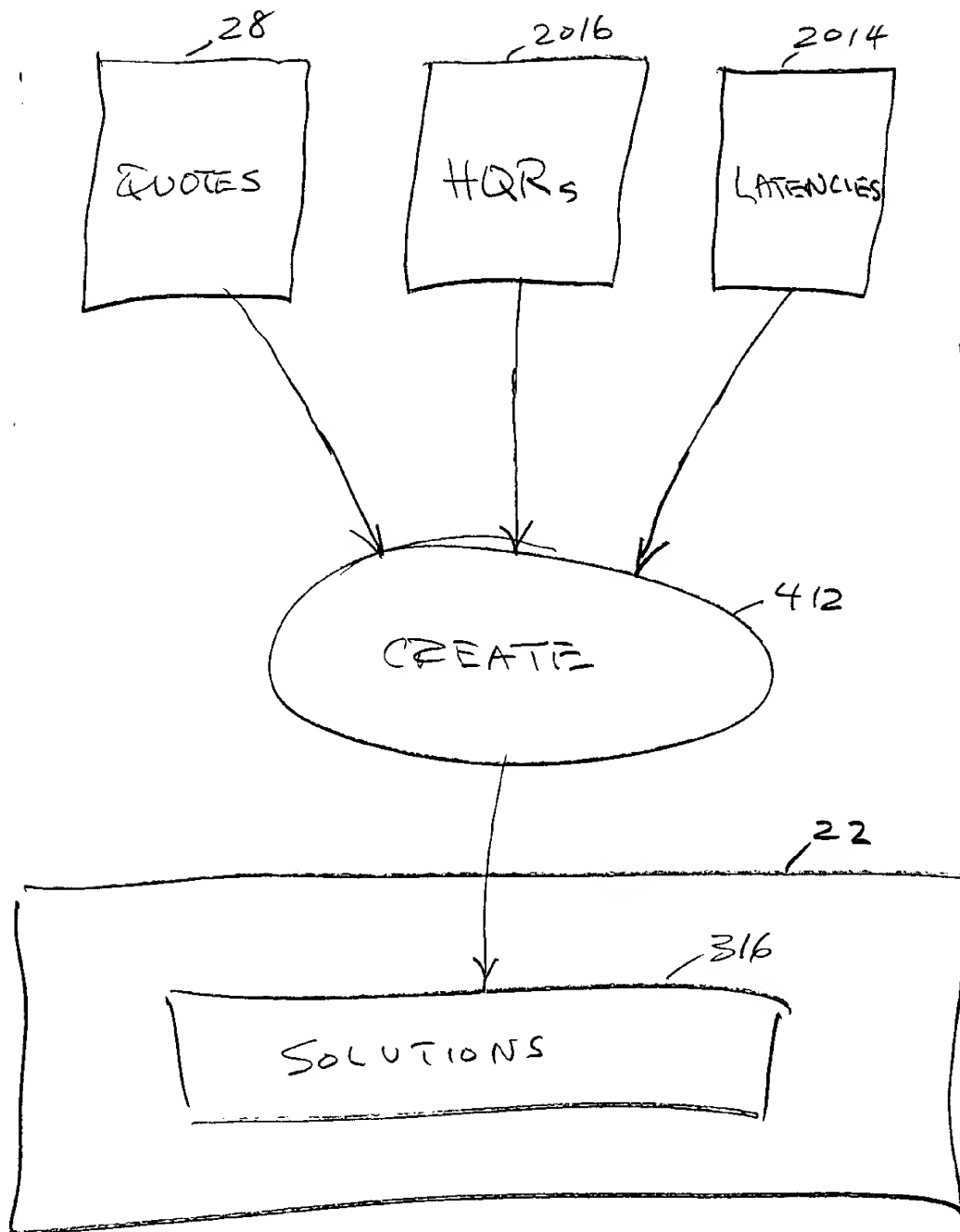


16 ↗

SOLUTION GENERATION

Fig. 4

09576947.052500



CREATE SOLUTIONS

Fig. 4A



000000 4468560

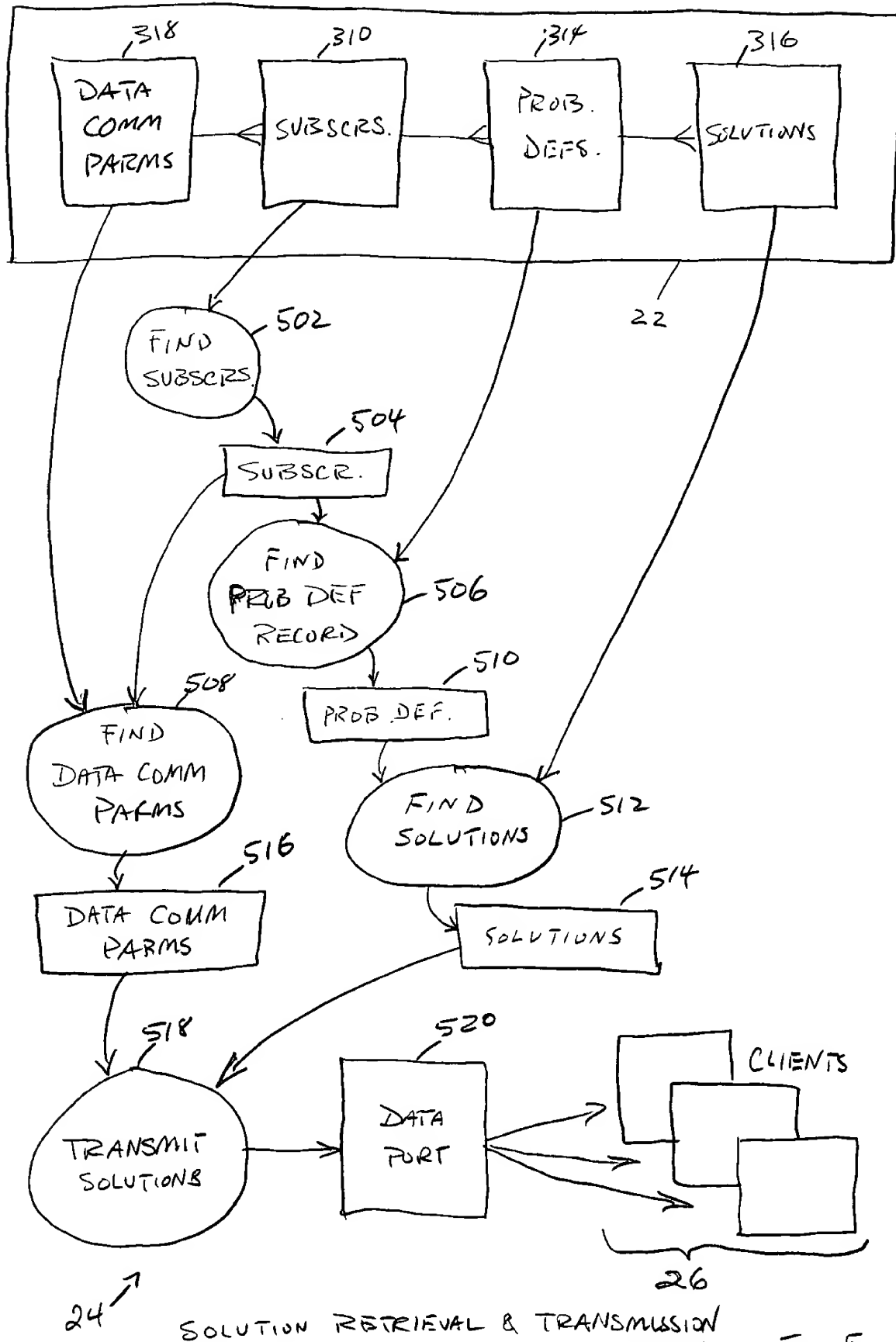


Fig. 5

```
graph TD
    602[CUSTOMER WORKSTATIONS] --> 604((RECEIVE))
    604 --> 606[Customer Order]
    606 --> 608((FIND SOLUTION))
    606 --> 316[SOLUTIONS]
    608 --> 610[SOLUTION]
    610 --> 614((CREATE SOLUTION ORDER))
    614 --> 616[SOLUTION ORDER]
    616 --> 612((SEND))
    612 --> 26[MARKETS]
    612 --> 24((COMMUNICATE SOLUTIONS))
    24 --> 316
```

The flowchart illustrates a solution recommendation system. It begins with **CUSTOMER WORKSTATIONS** (602) sending data to a **RECEIVE** process (604). The received data is then processed into a **CUSTOMER ORDER** (606), which is structured with fields for **SYMBOL** (210) and **TYPE** (226). This order is used to **FIND SOLUTION** (608). The result is a **SOLUTION** (610), which leads to **CREATE SOLUTION ORDER** (614). This step generates a **SOLUTION ORDER** (616), which is then **SEND** (612) to **MARKETS** (614). The **SEND** process (612) also triggers a **COMMUNICATE SOLUTIONS** process (24), which feeds back into the **SOLUTIONS** (316) database. The **SOLUTIONS** (316) database also receives input from the **CUSTOMER ORDER** (606).

Fig. 6

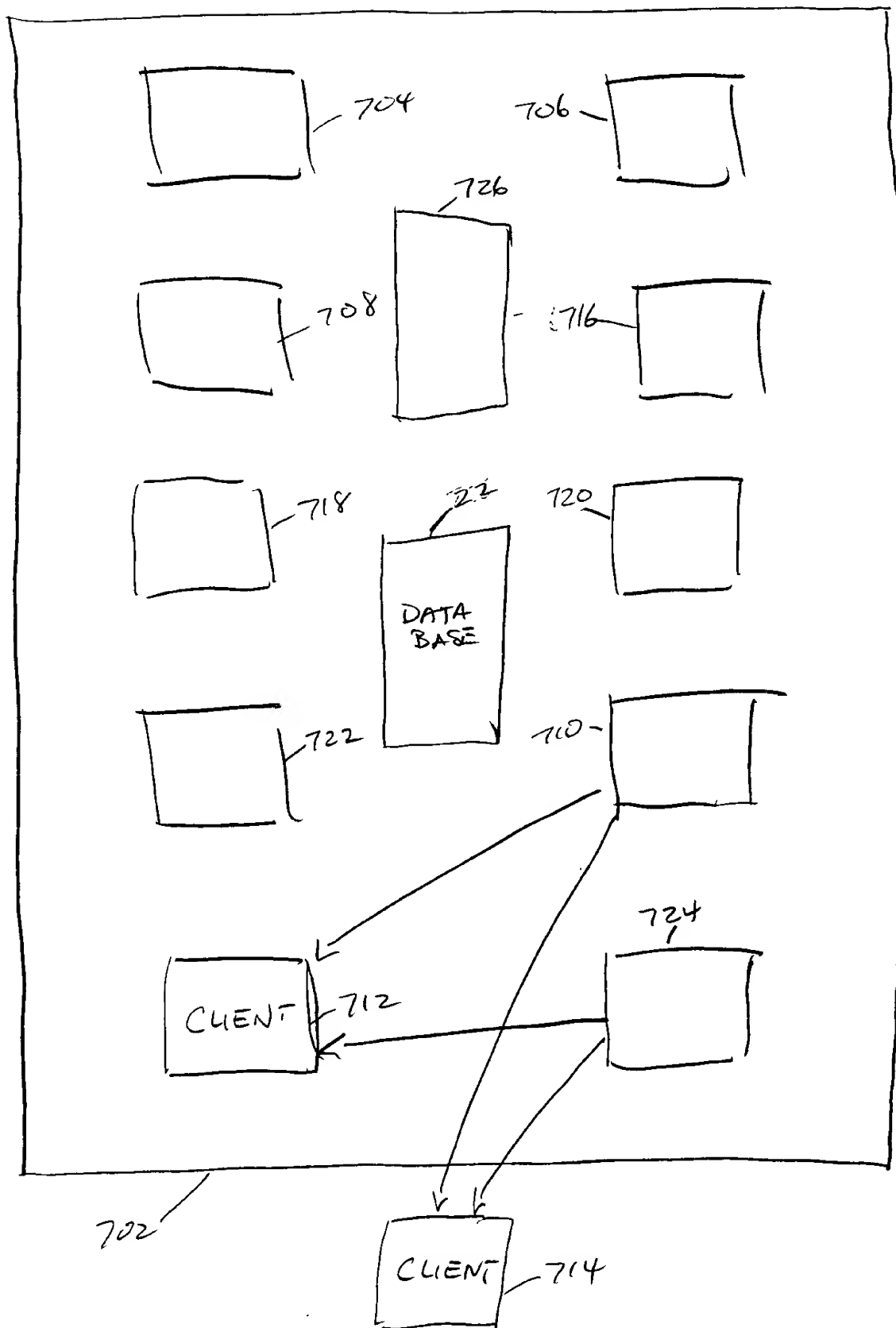
[illegible]

Fig. 7

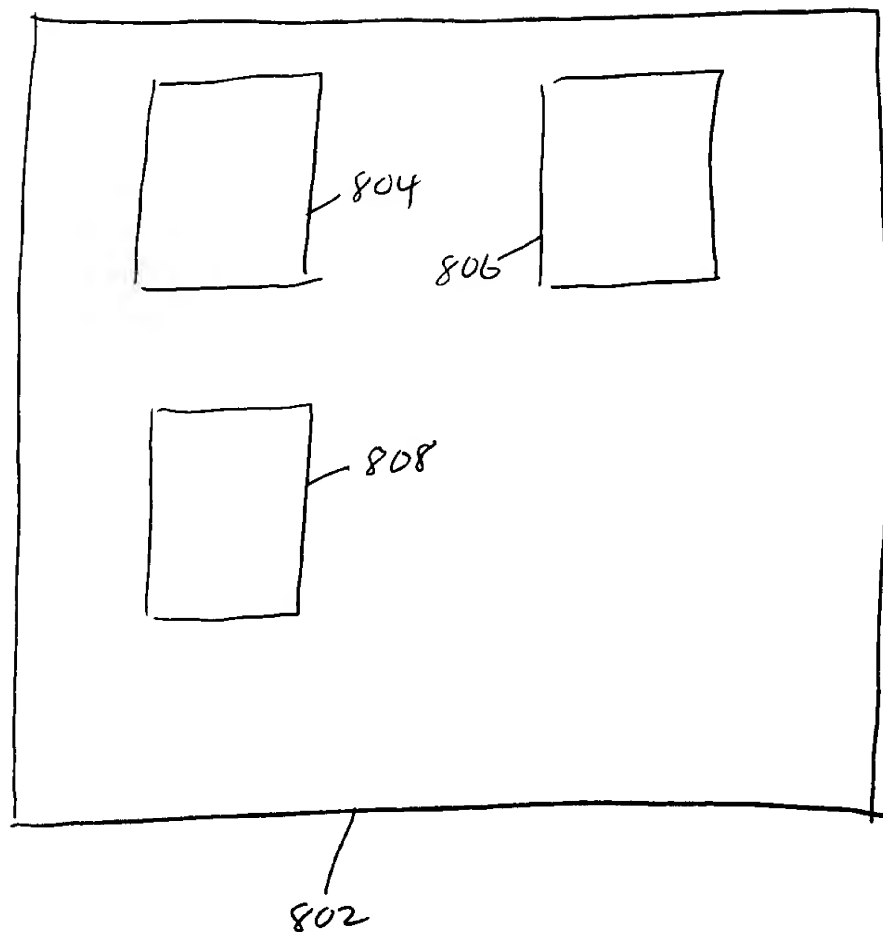
[illegible]

Fig. 8



A hand-drawn diagram illustrating a memory layout. It consists of five rectangular blocks arranged in a grid-like fashion. Each block is connected by a line to a handwritten address:

- Top-left block: 1004
- Top-right block: 1006
- Middle-left block: 1008
- Middle-right block: 1010
- Bottom-left block: 1012

Below the main diagram, there is a separate label '1002' with a line pointing upwards towards the bottom edge of the diagram area.

Fig. 10

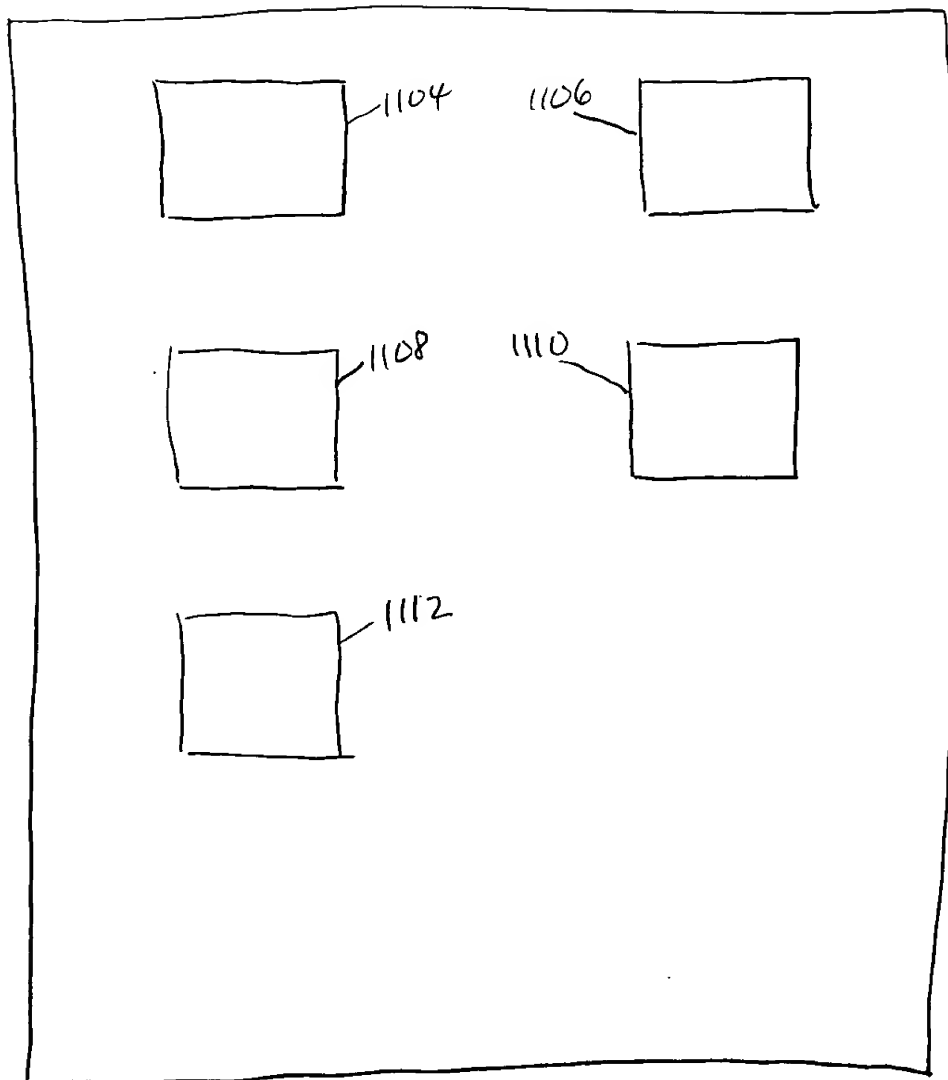
[illegible]

Fig. 11







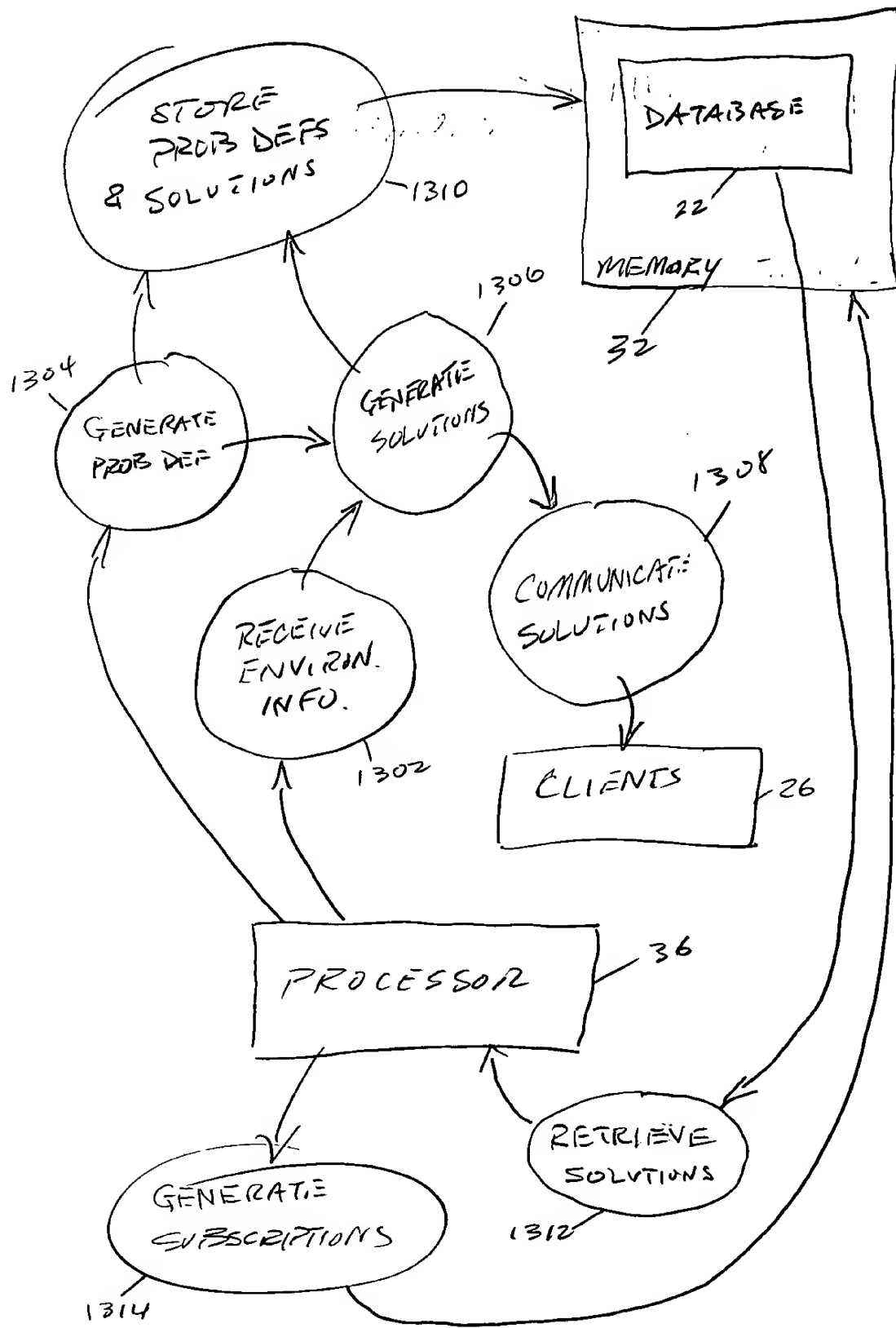
[illegible]

Fig. 14

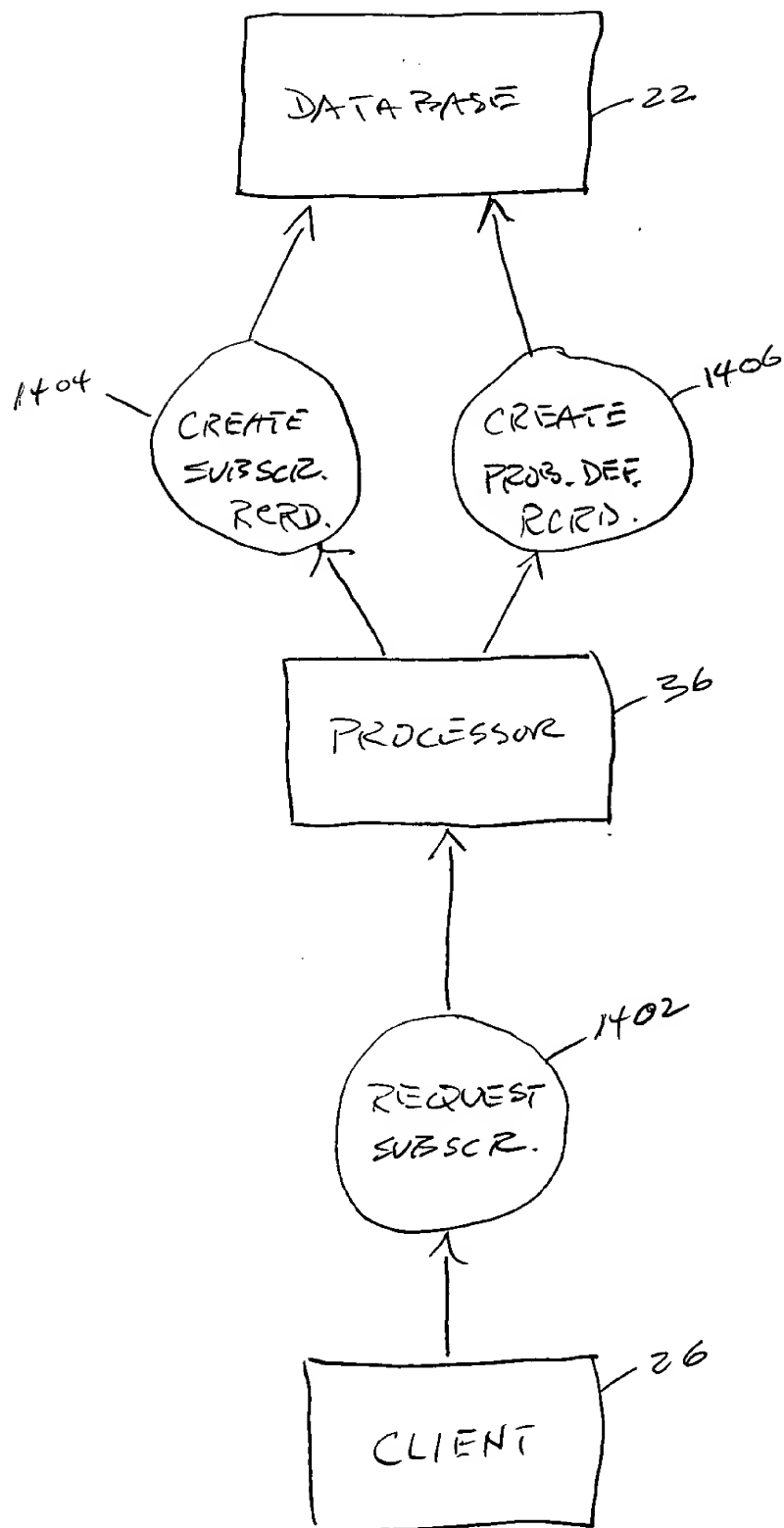
[illegible]

Fig. 15

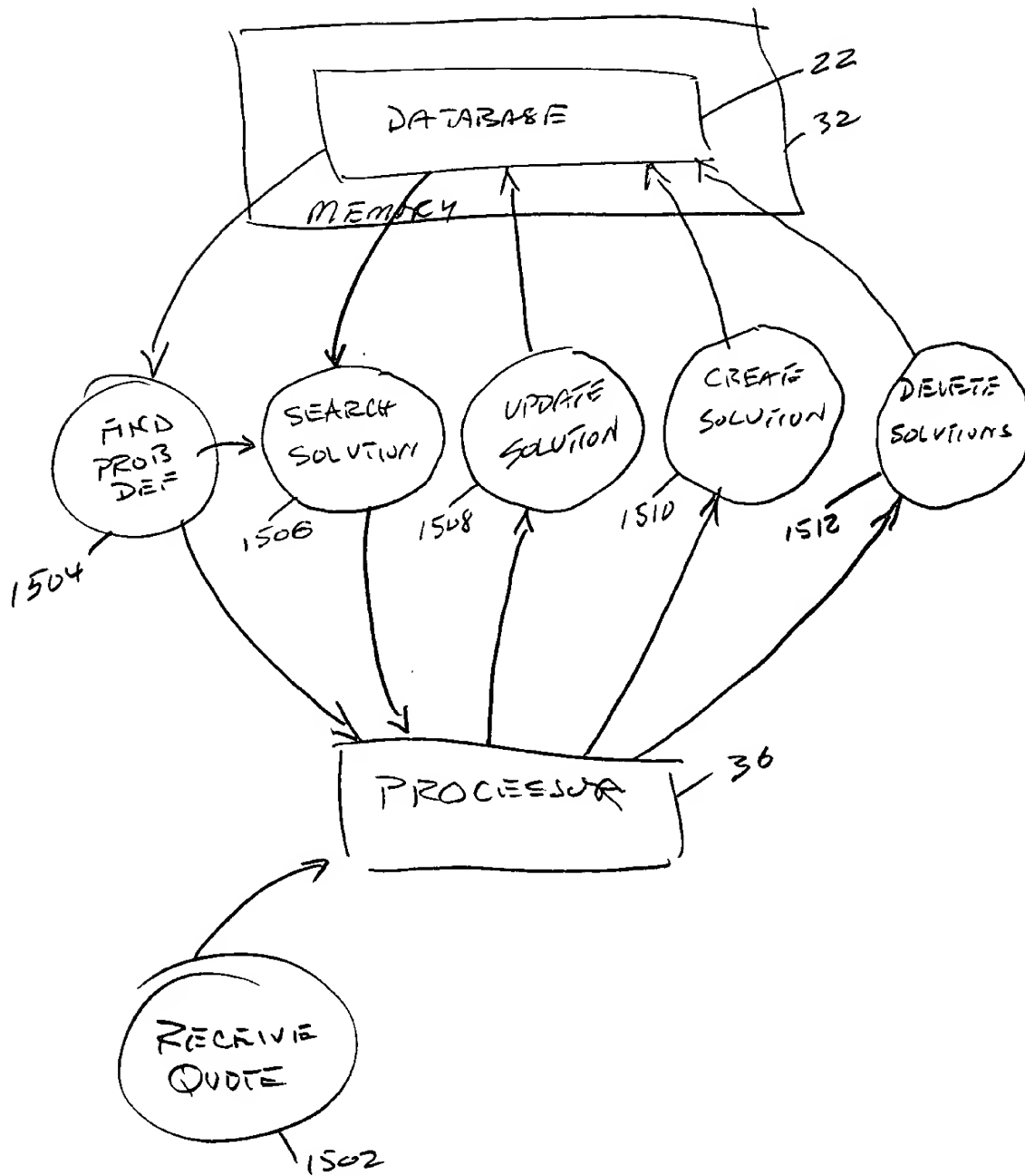
[illegible]

Fig. 16

005250 440450

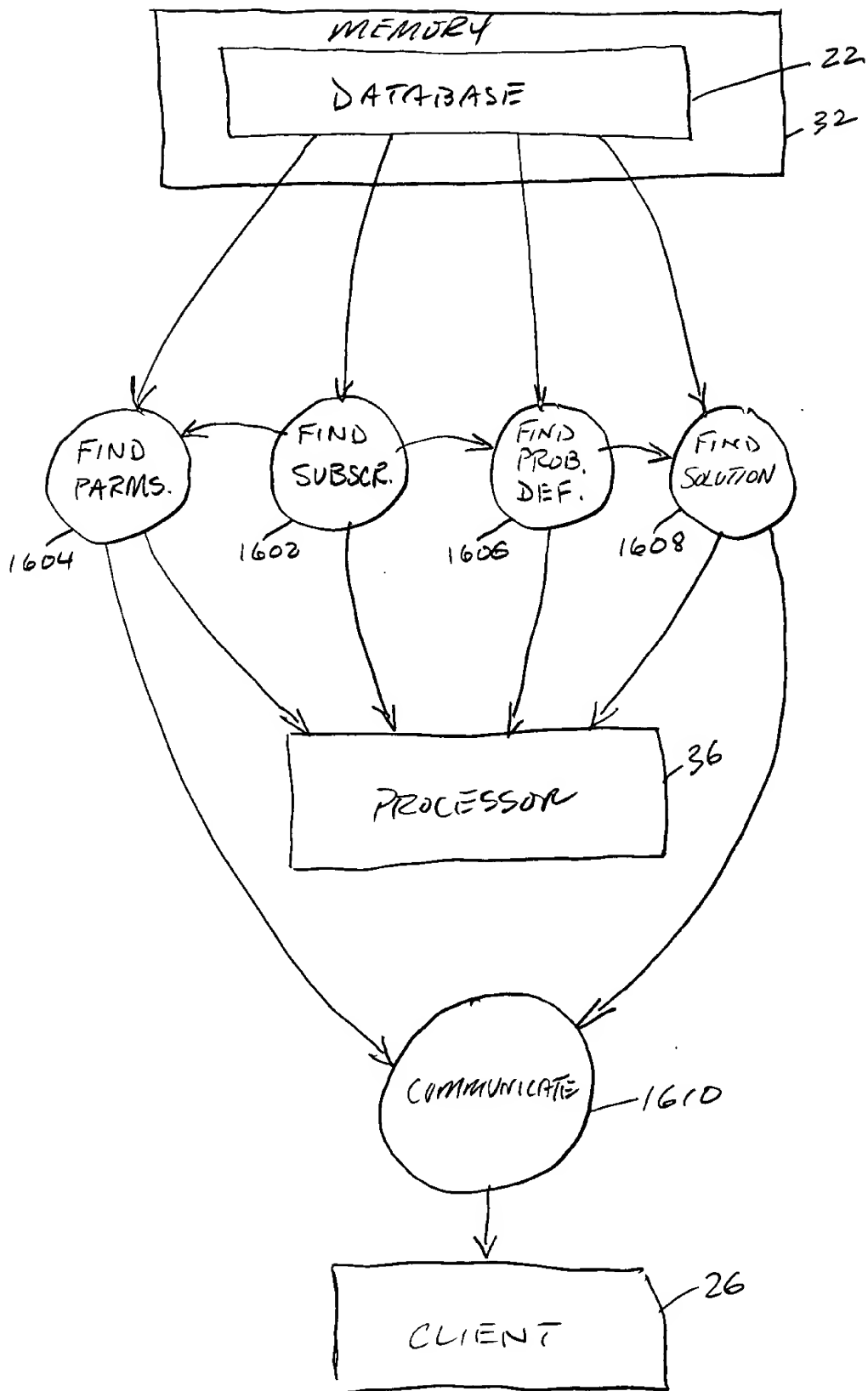


Fig. 17

[illegible]

Fig. 18

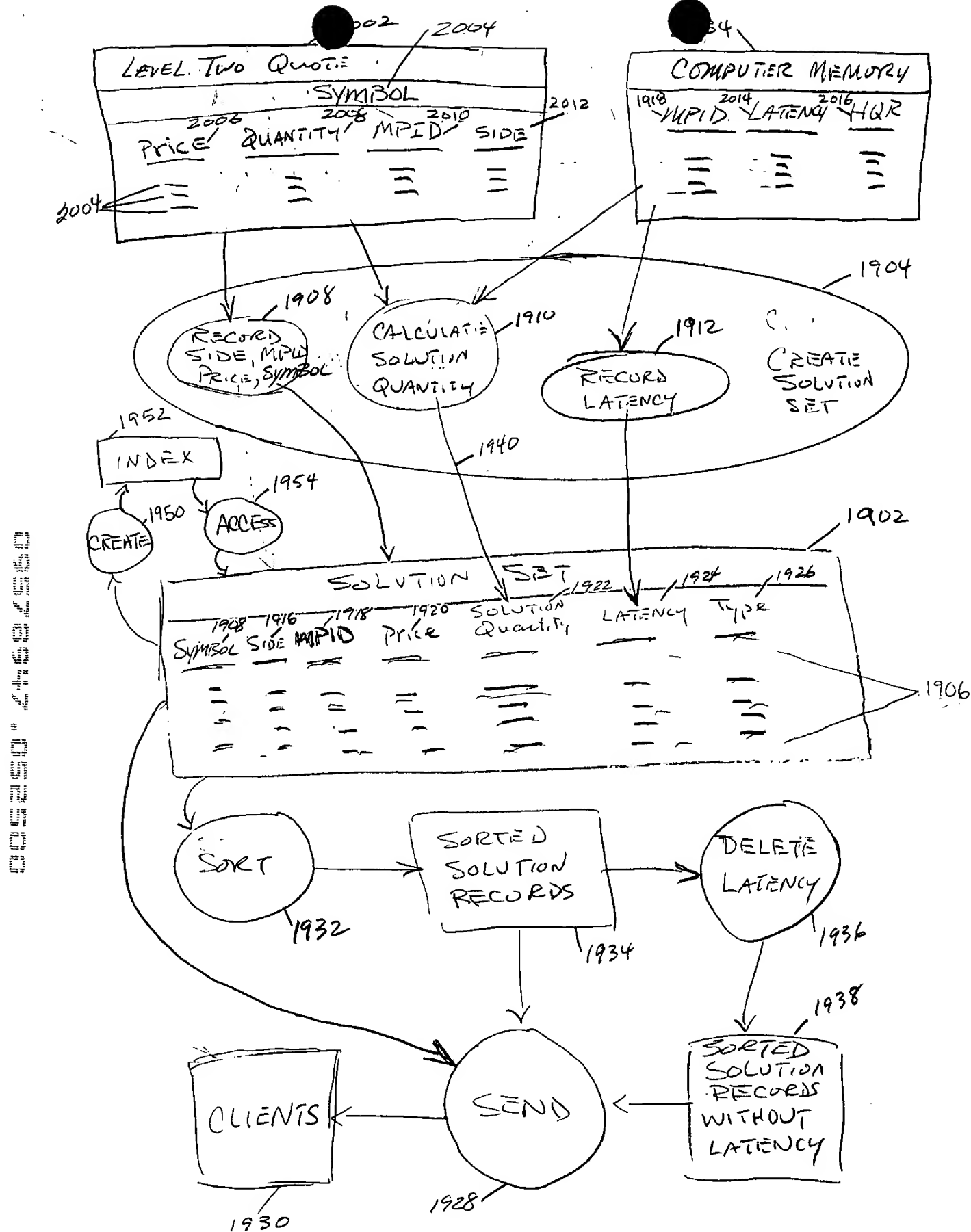


Fig. 19

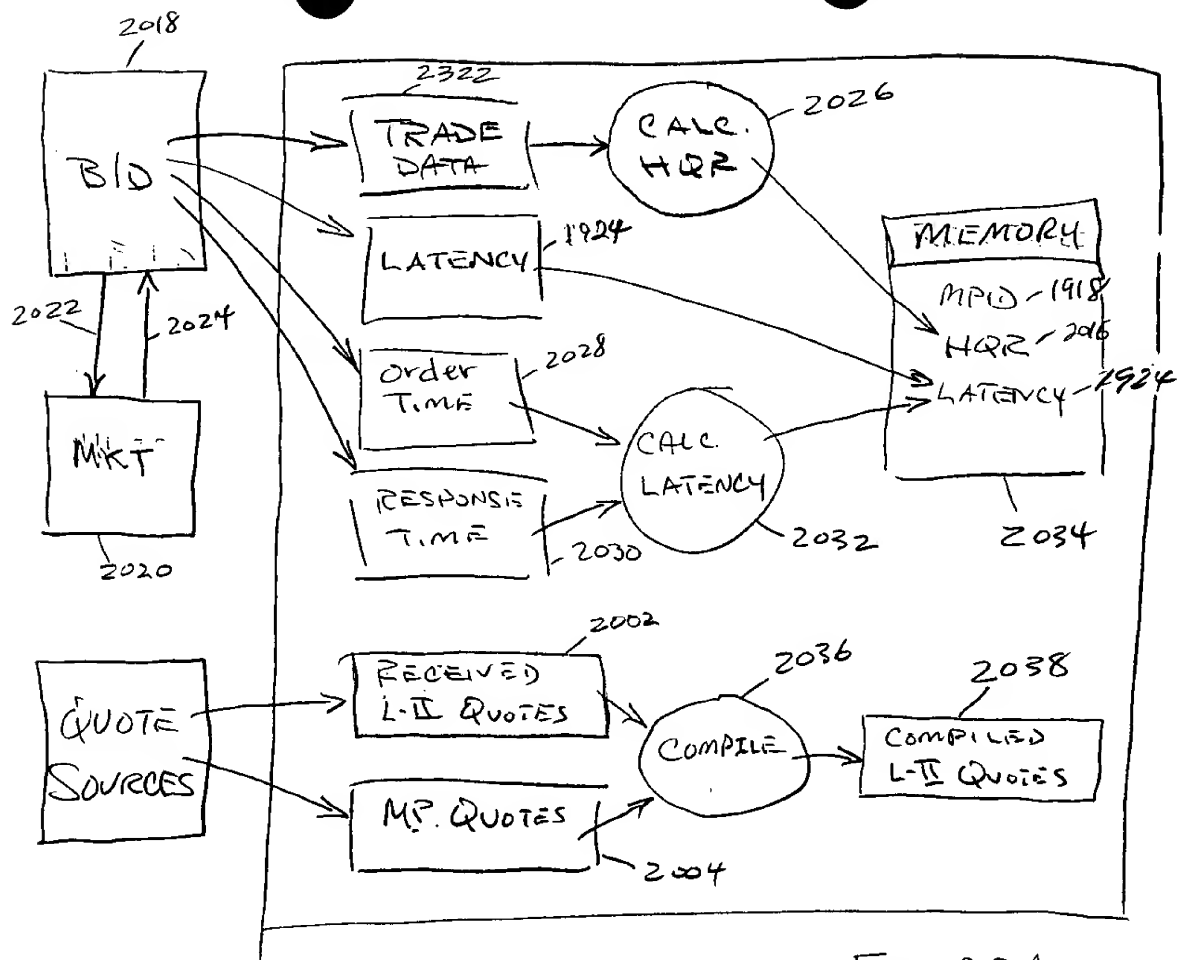


Fig. 20A

Level Two Quote / SYMBOL				2010
Price	Quantity	SIDE	MPID	2002
100	2000	BID	ARCH	2004
100	1000	BID	INCA	
101	500	ASK	GSCD	
102	1500	ASK	MSCO	

Fig. 20B



0526947-052600

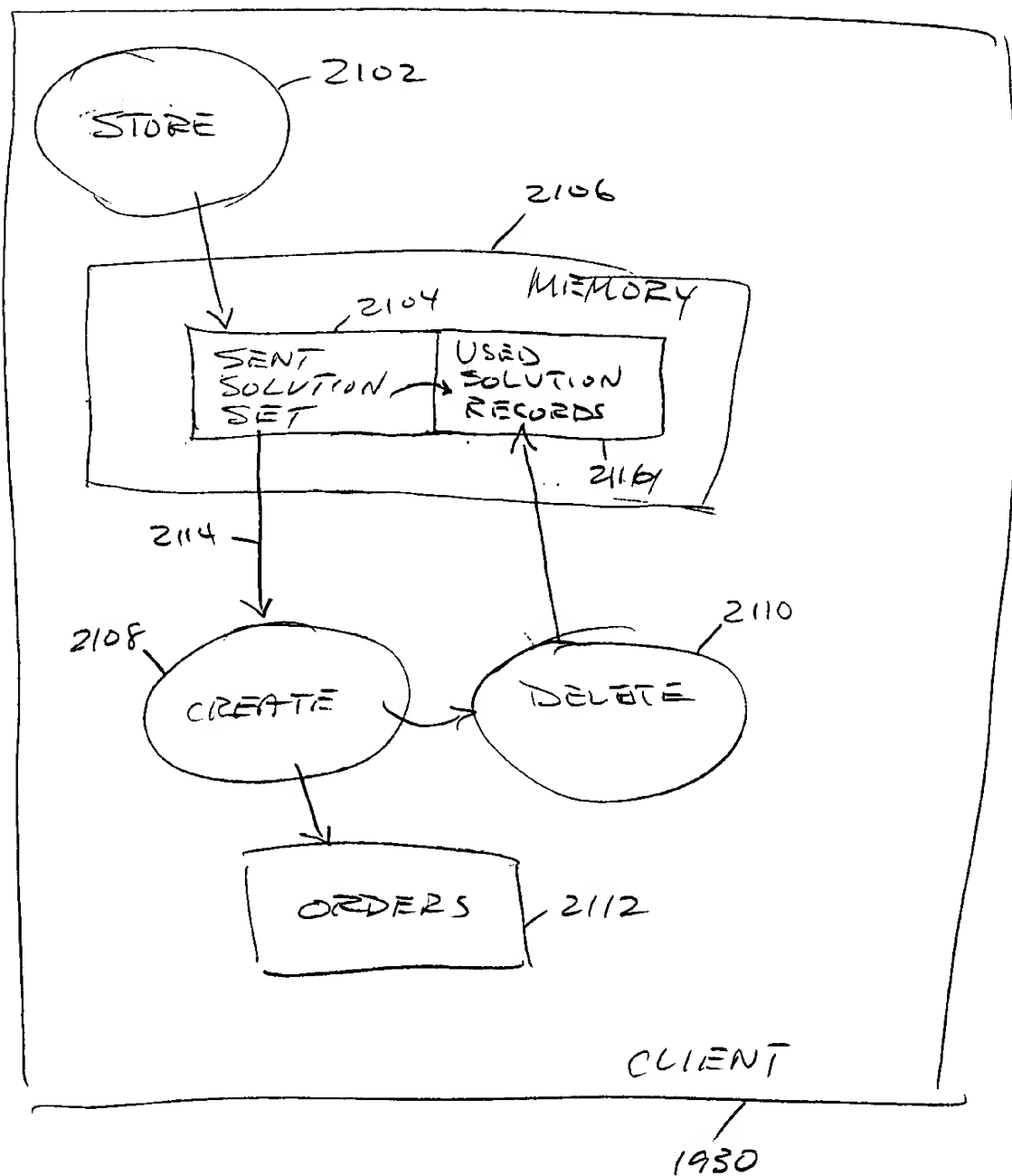


Fig. 21

1. *Staphylococcus aureus* (1000)  
 2. *Staphylococcus aureus* (1000)  
 3. *Staphylococcus aureus* (1000)  
 4. *Staphylococcus aureus* (1000)  
 5. *Staphylococcus aureus* (1000)  
 6. *Staphylococcus aureus* (1000)  
 7. *Staphylococcus aureus* (1000)  
 8. *Staphylococcus aureus* (1000)  
 9. *Staphylococcus aureus* (1000)  
 10. *Staphylococcus aureus* (1000)

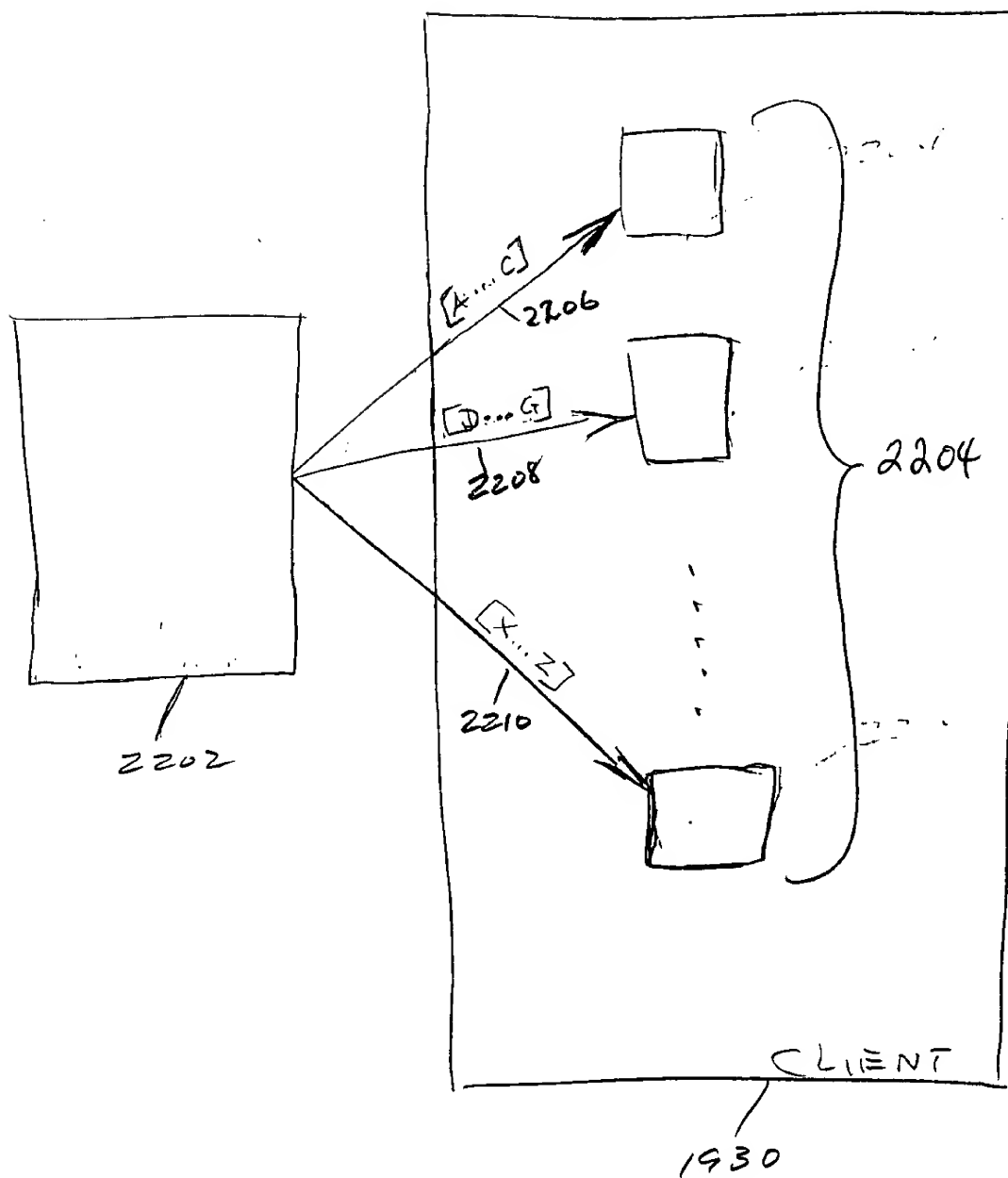


Fig. 22

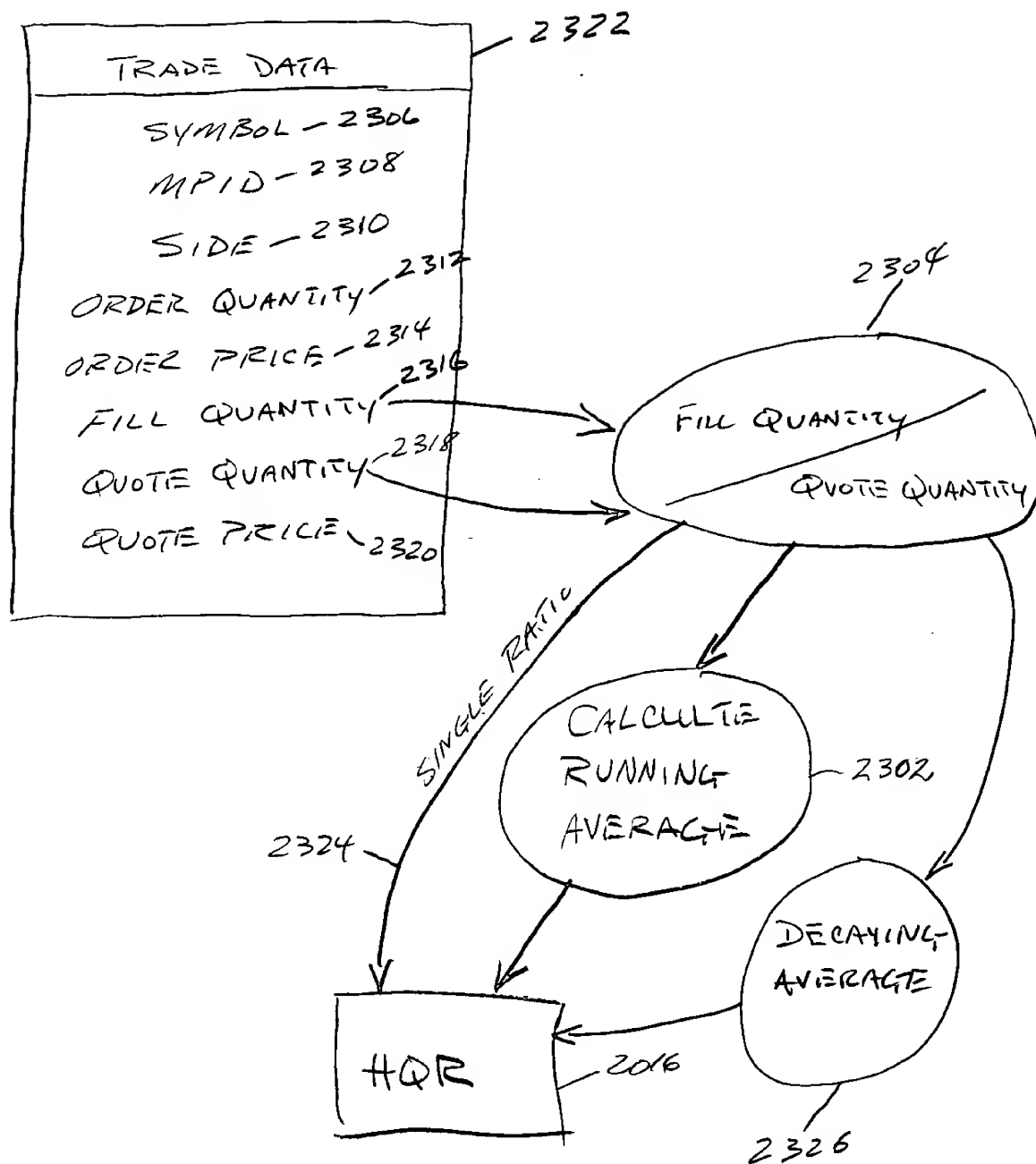


Fig. 23

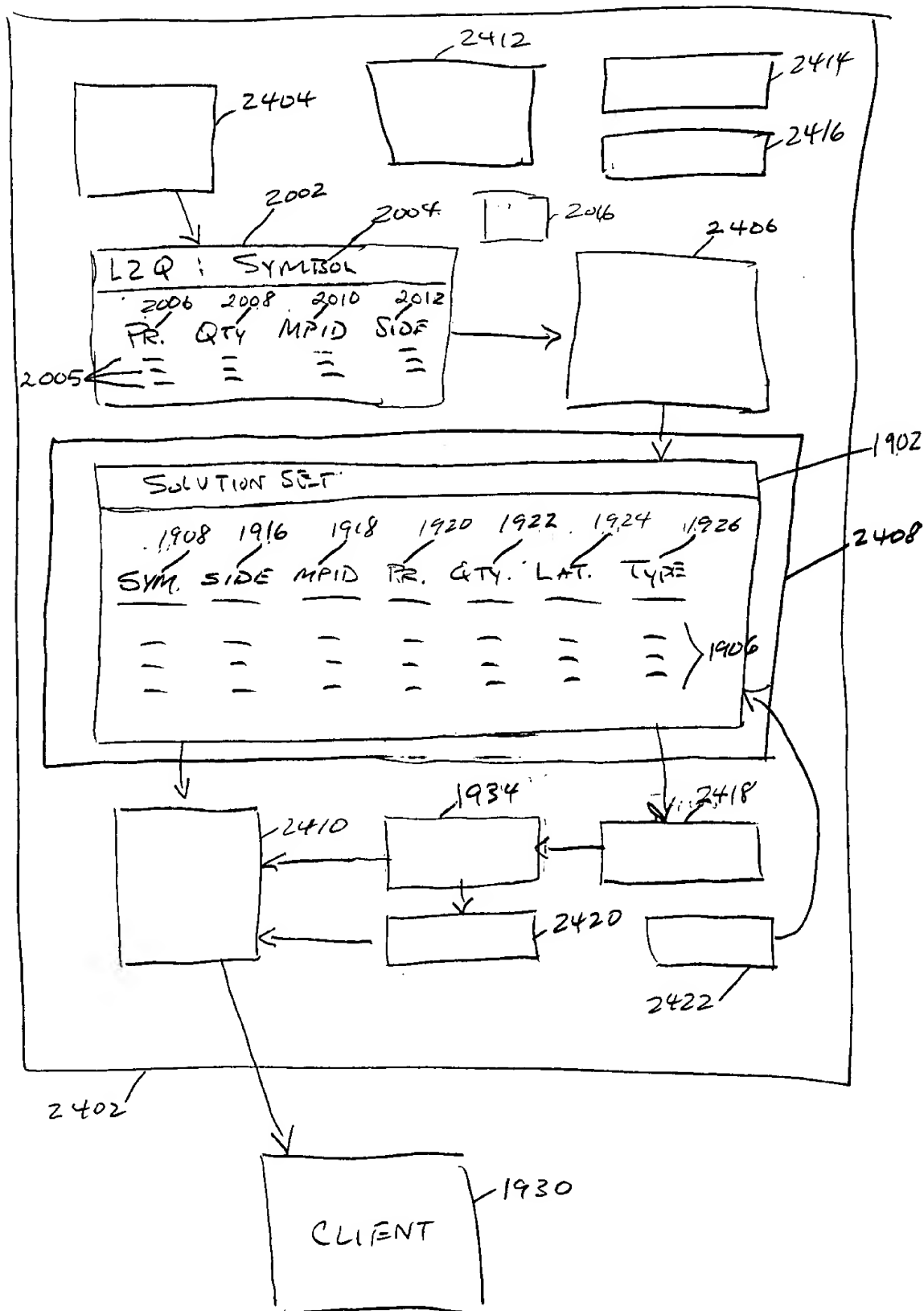


Fig. 24

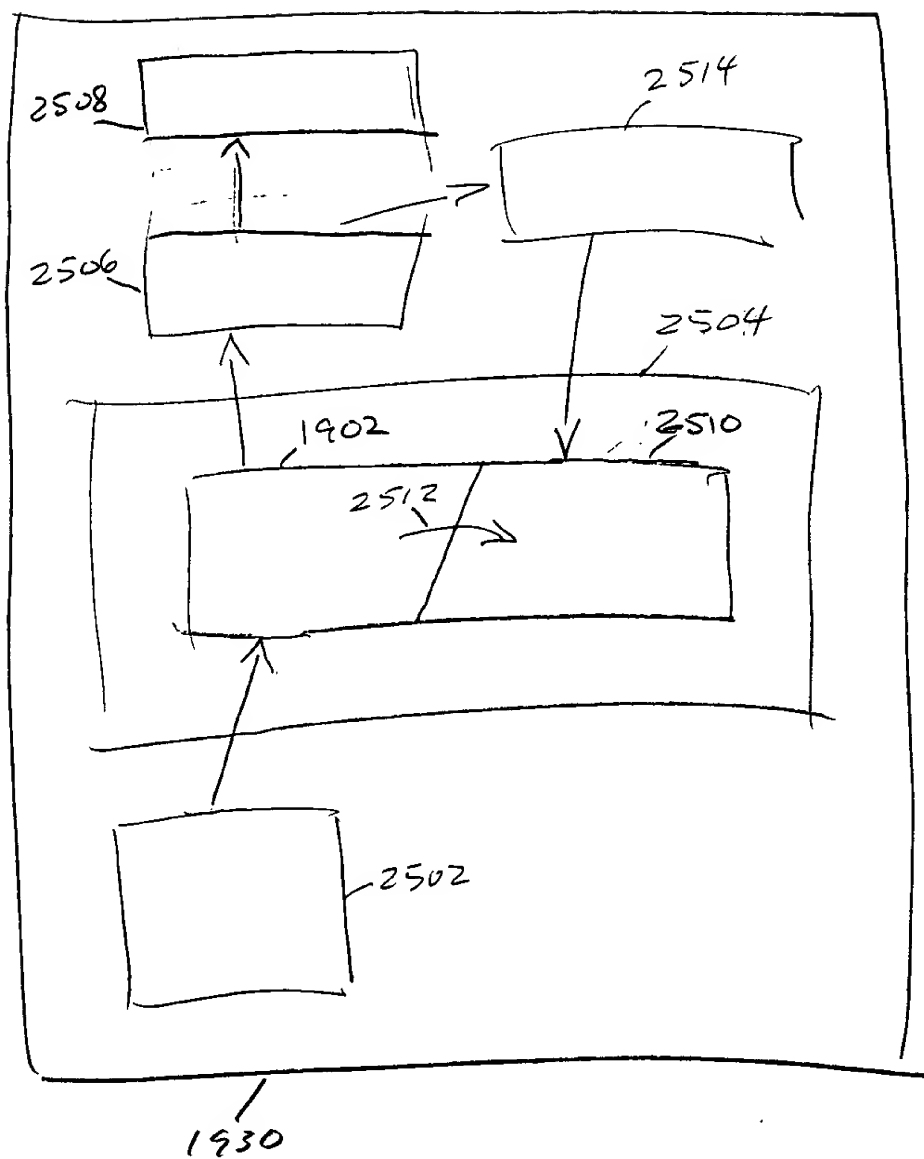
[illegible]

Fig. 25

```

graph TD
    SOURCE[2606] -- 2610 --> RECEIVE((2608))
    CLIENT[1930] -- 2612 --> PROCESSOR[2604]
    PROCESSOR -- 2612 --> CLIENT
    PROCESSOR -- 2620 --> SEND((2622))
    SEND -- 2622 --> CLIENT
    PROCESSOR -- 2614 --> CREATE((2614))
    CREATE -- 2616 --> STORE((2616))
    STORE -- 2618 --> MEMORY[1902]
    PROCESSOR -- 2618 --> MEMORY
    MEMORY -- 2618 --> SEND
    MEMORY -- 2618 --> DEL((2636))
    DEL -- 2636 --> SEND
    MEMORY -- 2618 --> SORT((2630))
    SORT -- 2634 --> CREATE_INDEX((2634))
    CREATE_INDEX -- 2634 --> SOLUTION_SET[1926]
    SOLUTION_SET -- 2628 --> RECORD((2624))
    RECORD -- 2624 --> CALCULATE[2626]
    HQR[2016] -- 2016 --> CALCULATE
    CALCULATE -- 2626 --> RECORD
    CALCULATE -- 2626 --> SOLUTION_SET
    CALCULATE -- 2626 --> SORT
    CALCULATE -- 2626 --> CREATE_INDEX
    QUOTE[2002] -- 2002 --> RECORD
    QUOTE -- 2002 --> CALCULATE
    QUOTE -- 2002 --> SOLUTION_SET
    QUOTE -- 2002 --> SORT
    QUOTE -- 2002 --> CREATE_INDEX
  
```

Fig. 26

Fig. 26

1. *Chlorophyll a* (Chl *a*)  
 2. *Chlorophyll b* (Chl *b*)  
 3. *Chlorophyll c* (Chl *c*)  
 4. *Chlorophyll d* (Chl *d*)  
 5. *Chlorophyll e* (Chl *e*)  
 6. *Chlorophyll f* (Chl *f*)  
 7. *Chlorophyll g* (Chl *g*)  
 8. *Chlorophyll h* (Chl *h*)  
 9. *Chlorophyll i* (Chl *i*)  
 10. *Chlorophyll j* (Chl *j*)  
 11. *Chlorophyll k* (Chl *k*)  
 12. *Chlorophyll l* (Chl *l*)  
 13. *Chlorophyll m* (Chl *m*)  
 14. *Chlorophyll n* (Chl *n*)  
 15. *Chlorophyll o* (Chl *o*)  
 16. *Chlorophyll p* (Chl *p*)  
 17. *Chlorophyll q* (Chl *q*)  
 18. *Chlorophyll r* (Chl *r*)  
 19. *Chlorophyll s* (Chl *s*)  
 20. *Chlorophyll t* (Chl *t*)  
 21. *Chlorophyll u* (Chl *u*)  
 22. *Chlorophyll v* (Chl *v*)  
 23. *Chlorophyll w* (Chl *w*)  
 24. *Chlorophyll x* (Chl *x*)  
 25. *Chlorophyll y* (Chl *y*)  
 26. *Chlorophyll z* (Chl *z*)  
 27. *Chlorophyll aa* (Chl *aa*)  
 28. *Chlorophyll ab* (Chl *ab*)  
 29. *Chlorophyll ac* (Chl *ac*)  
 30. *Chlorophyll ad* (Chl *ad*)  
 31. *Chlorophyll ae* (Chl *ae*)  
 32. *Chlorophyll af* (Chl *af*)  
 33. *Chlorophyll ag* (Chl *ag*)  
 34. *Chlorophyll ah* (Chl *ah*)  
 35. *Chlorophyll ai* (Chl *ai*)  
 36. *Chlorophyll aj* (Chl *aj*)  
 37. *Chlorophyll ak* (Chl *ak*)  
 38. *Chlorophyll al* (Chl *al*)  
 39. *Chlorophyll am* (Chl *am*)  
 40. *Chlorophyll an* (Chl *an*)  
 41. *Chlorophyll ao* (Chl *ao*)  
 42. *Chlorophyll ap* (Chl *ap*)  
 43. *Chlorophyll aq* (Chl *aq*)  
 44. *Chlorophyll ar* (Chl *ar*)  
 45. *Chlorophyll as* (Chl *as*)  
 46. *Chlorophyll at* (Chl *at*)  
 47. *Chlorophyll au* (Chl *au*)  
 48. *Chlorophyll av* (Chl *av*)  
 49. *Chlorophyll aw* (Chl *aw*)  
 50. *Chlorophyll ax* (Chl *ax*)  
 51. *Chlorophyll ay* (Chl *ay*)  
 52. *Chlorophyll az* (Chl *az*)  
 53. *Chlorophyll ba* (Chl *ba*)  
 54. *Chlorophyll bb* (Chl *bb*)  
 55. *Chlorophyll bc* (Chl *bc*)  
 56. *Chlorophyll bd* (Chl *bd*)  
 57. *Chlorophyll be* (Chl *be*)  
 58. *Chlorophyll bf* (Chl *bf*)  
 59. *Chlorophyll bg* (Chl *bg*)  
 60. *Chlorophyll bh* (Chl *bh*)  
 61. *Chlorophyll bi* (Chl *bi*)  
 62. *Chlorophyll bj* (Chl *bj*)  
 63. *Chlorophyll bk* (Chl *bk*)  
 64. *Chlorophyll bl* (Chl *bl*)  
 65. *Chlorophyll bm* (Chl *bm*)  
 66. *Chlorophyll bn* (Chl *bn*)  
 67. *Chlorophyll bo* (Chl *bo*)  
 68. *Chlorophyll bp* (Chl *bp*)  
 69. *Chlorophyll bq* (Chl *bq*)  
 70. *Chlorophyll br* (Chl *br*)  
 71. *Chlorophyll bs* (Chl *bs*)  
 72. *Chlorophyll bt* (Chl *bt*)  
 73. *Chlorophyll bu* (Chl *bu*)  
 74. *Chlorophyll bv* (Chl *bv*)  
 75. *Chlorophyll bw* (Chl *bw*)  
 76. *Chlorophyll bx* (Chl *bx*)  
 77. *Chlorophyll by* (Chl *by*)  
 78. *Chlorophyll bz* (Chl *bz*)  
 79. *Chlorophyll ca* (Chl *ca*)  
 80. *Chlorophyll cb* (Chl *cb*)  
 81. *Chlorophyll cc* (Chl *cc*)  
 82. *Chlorophyll cd* (Chl *cd*)  
 83. *Chlorophyll ce* (Chl *ce*)  
 84. *Chlorophyll cf* (Chl *cf*)  
 85. *Chlorophyll cg* (Chl *cg*)  
 86. *Chlorophyll ch* (Chl *ch*)  
 87. *Chlorophyll ci* (Chl *ci*)  
 88. *Chlorophyll cj* (Chl *cj*)  
 89. *Chlorophyll ck* (Chl *ck*)  
 90. *Chlorophyll cl* (Chl *cl*)  
 91. *Chlorophyll cm* (Chl *cm*)  
 92. *Chlorophyll cn* (Chl *cn*)  
 93. *Chlorophyll co* (Chl *co*)  
 94. *Chlorophyll cp* (Chl *cp*)  
 95. *Chlorophyll cq* (Chl *cq*)  
 96. *Chlorophyll cr* (Chl *cr*)  
 97. *Chlorophyll cs* (Chl *cs*)  
 98. *Chlorophyll ct* (Chl *ct*)  
 99. *Chlorophyll cu* (Chl *cu*)  
 100. *Chlorophyll cv* (Chl *cv*)  
 101. *Chlorophyll cw* (Chl *cw*)  
 102. *Chlorophyll cx* (Chl *cx*)  
 103. *Chlorophyll cy* (Chl *cy*)  
 104. *Chlorophyll cz* (Chl *cz*)  
 105. *Chlorophyll da* (Chl *da*)  
 106. *Chlorophyll db* (Chl *db*)  
 107. *Chlorophyll dc* (Chl *dc*)  
 108. *Chlorophyll dd* (Chl *dd*)  
 109. *Chlorophyll de* (Chl *de*)  
 110. *Chlorophyll df* (Chl *df*)  
 111. *Chlorophyll dg* (Chl *dg*)  
 112. *Chlorophyll dh* (Chl *dh*)  
 113. *Chlorophyll di* (Chl *di*)  
 114. *Chlorophyll dj* (Chl *dj*)  
 115. *Chlorophyll dk* (Chl *dk*)  
 116. *Chlorophyll dl* (Chl *dl*)  
 117. *Chlorophyll dm* (Chl *dm*)  
 118. *Chlorophyll dn* (Chl *dn*)  
 119. *Chlorophyll do* (Chl *do*)  
 120. *Chlorophyll dp* (Chl *dp*)  
 121. *Chlorophyll dq* (Chl *dq*)  
 122. *Chlorophyll dr* (Chl *dr*)  
 123. *Chlorophyll ds* (Chl *ds*)  
 124. *Chlorophyll dt* (Chl *dt*)  
 125. *Chlorophyll du* (Chl *du*)  
 126. *Chlorophyll dv* (Chl *dv*)  
 127. *Chlorophyll dw* (Chl *dw*)  
 128. *Chlorophyll dx* (Chl *dx*)  
 129. *Chlorophyll dy* (Chl *dy*)  
 130. *Chlorophyll dz* (Chl *dz*)  
 131. *Chlorophyll ea* (Chl *ea*)  
 132. *Chlorophyll eb* (Chl *eb*)  
 133. *Chlorophyll ec* (Chl *ec*)  
 134. *Chlorophyll ed* (Chl *ed*)  
 135. *Chlorophyll ee* (Chl *ee*)  
 136. *Chlorophyll ef* (Chl *ef*)  
 1

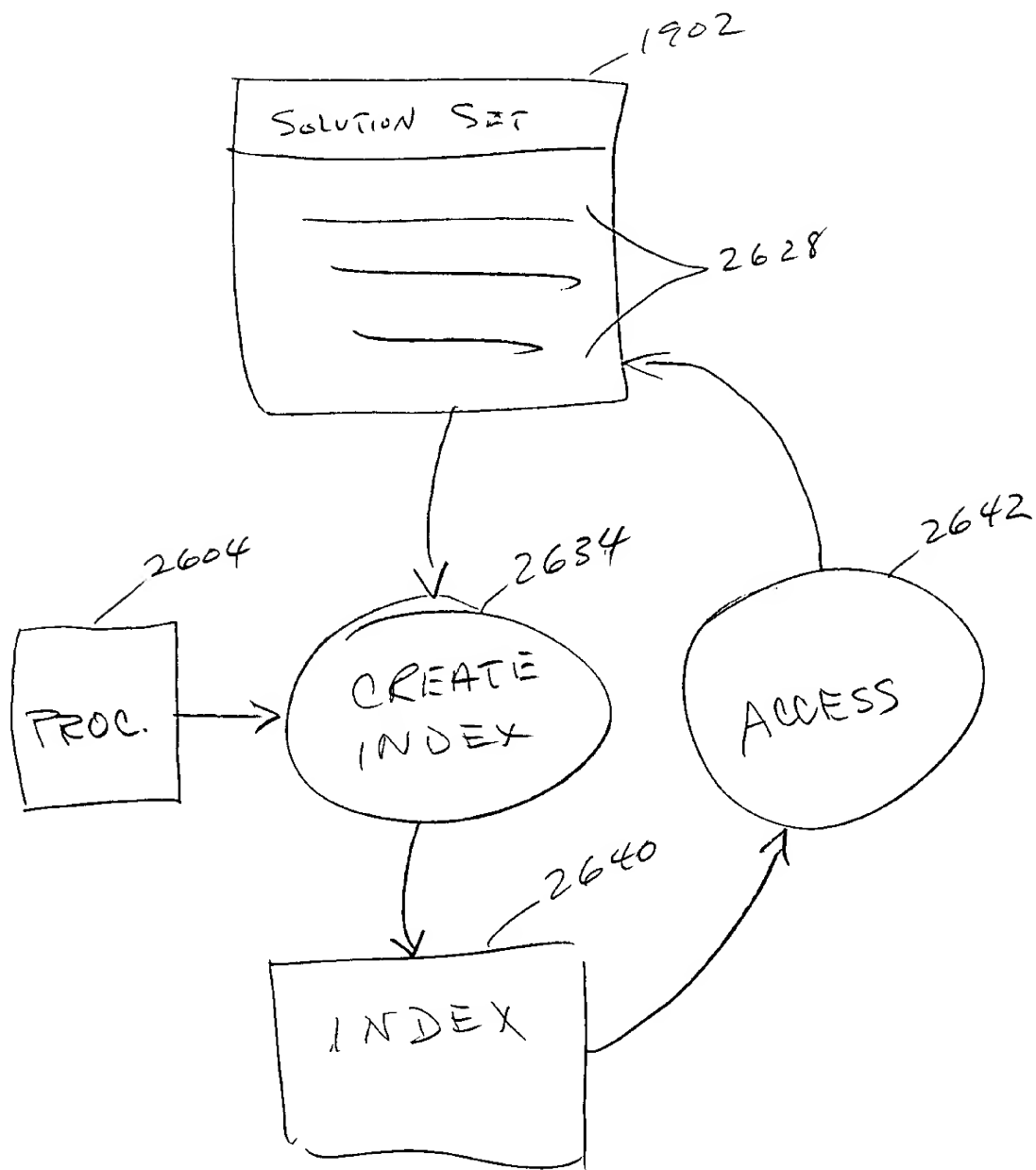
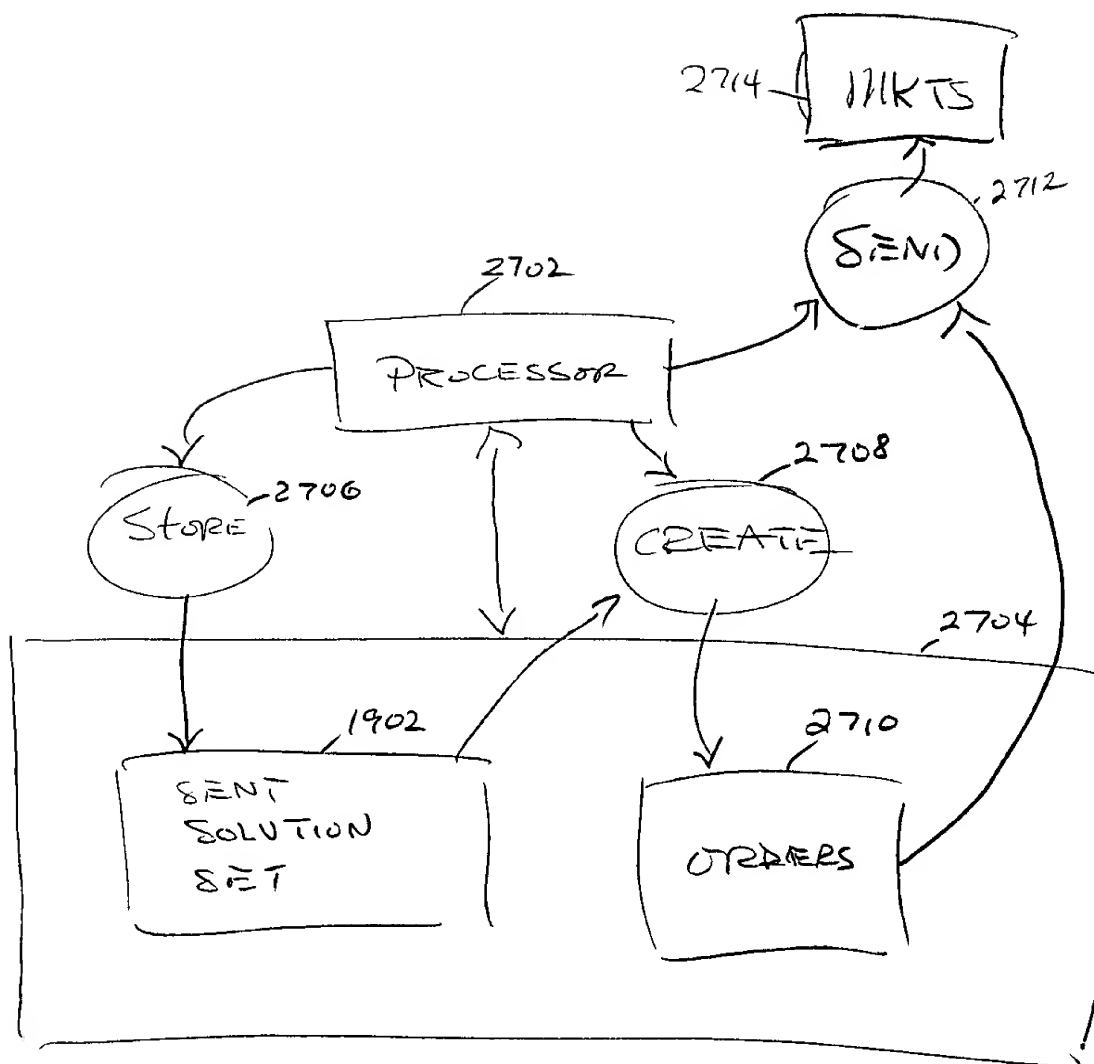


Fig. 26A

052344 052343



1930

Fig. 27



005260 7463650

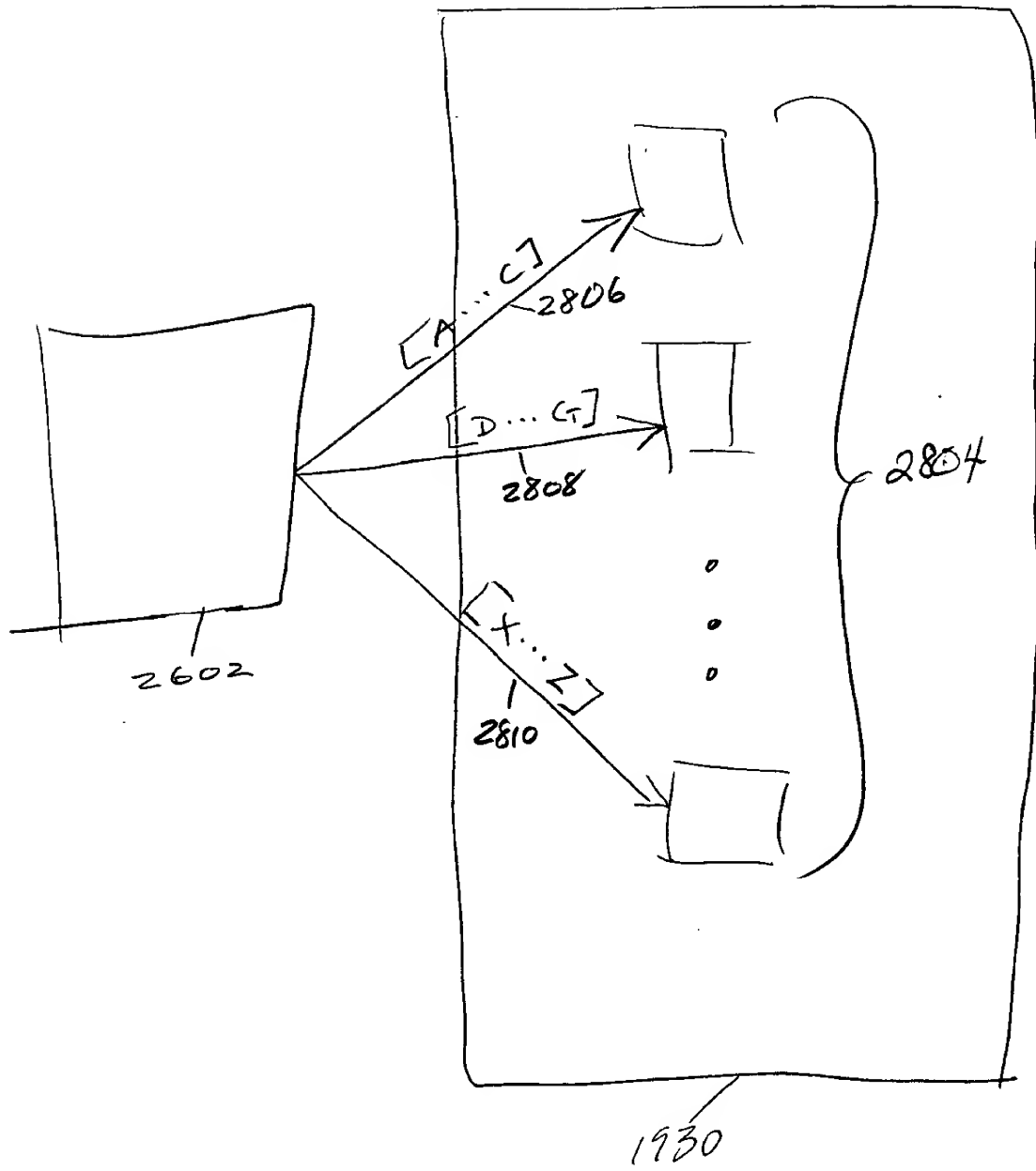


Fig. 28

Hand-drawn diagram illustrating the mapping of L-II Quote fields to a SOLUTION SET table.

**L-II Quote Fields:**

- 2004: SYMBOL
- 2006: PRICE
- 2008: QUANTITY
- 2010: MPID
- 2012: SIDE

**SOLUTION SET Table:**

SOLUTION SET	
SOLUTION RECORD	
→	SYMBOL - 1908
→	PRICE - 1920
→	QUANTITY - 1922
→	MPID - 1918
→	SIDE - 1916

**Additional Fields:**

- LATENCY - 1924
- TYPE - 1926

$$\begin{array}{ccccccc} \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n & \xrightarrow{\text{inclusion}} & \mathbb{Z}^n \end{array}$$

Fig. 29

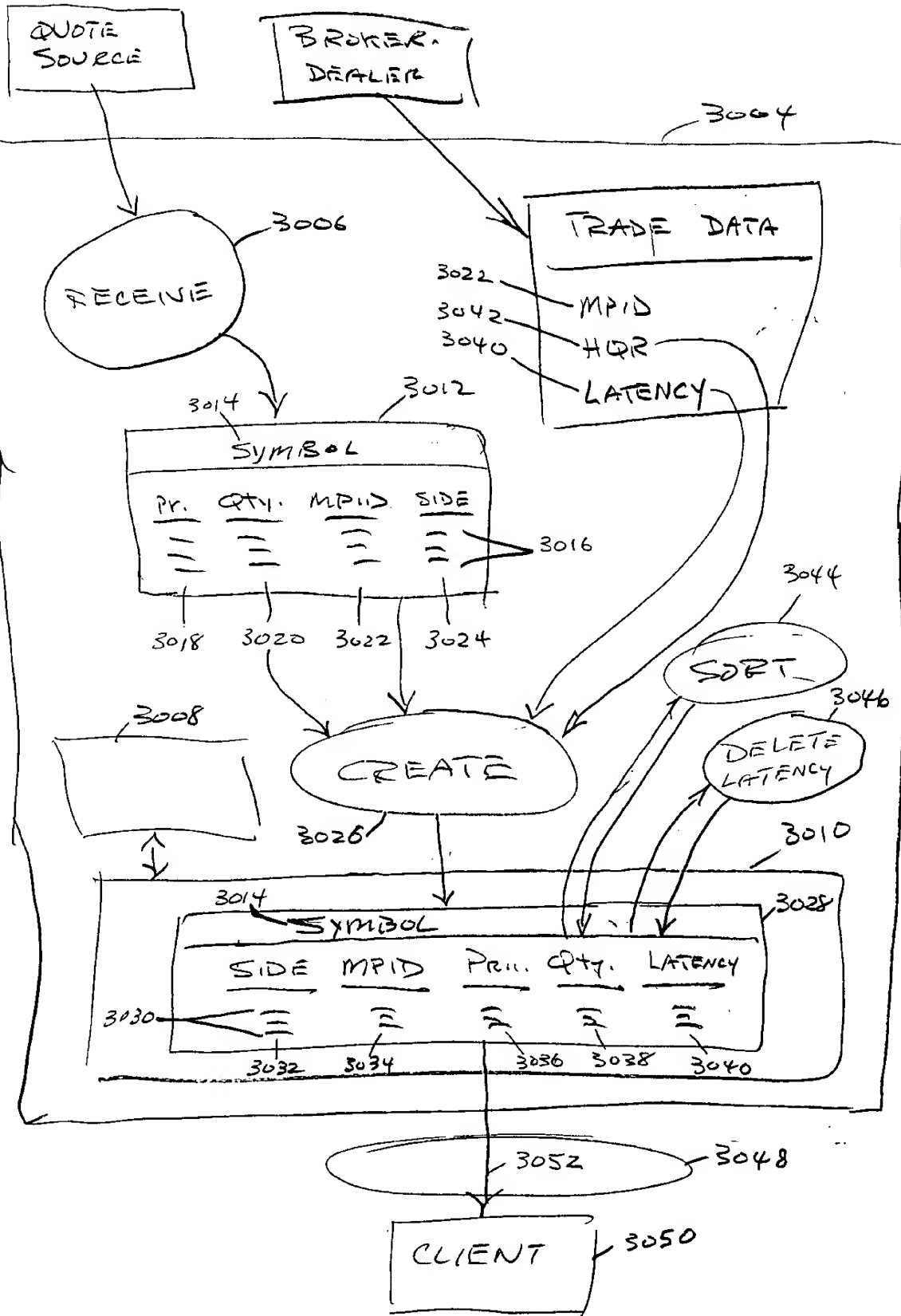


Fig. 30